

# **EXHIBIT 3**

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1                   UNITED STATES DISTRICT COURT  
2                   FOR THE NORTHERN DISTRICT OF CALIFORNIA  
3                   SAN FRANCISCO DIVISION  
4

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5                   IN RE: GOOGLE PLAY STORE ANTITRUST LITIGATION

6                   Case No. 3:21-md-02981-JD

7                   THIS DOCUMENT RELATES TO:

8                   Epic Games Inc. v. Google LLC, et al.

9                   Case No. 3:20-cv-05671-JD

10                   In Re: Google Play Consumer Antitrust Litigation

11                   Case No. 3:20-cv-05761-JD

12                   State of Utah, et al. v. Google LLC, et al.

13                   Case No. 3:21-cv-05227-JD

14                   Match Group LLC, et al., v. Google LLC, et al.

15                   Case No. 3:22-cv-02746-JD

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16                   \*\* CONFIDENTIAL \*\*

17                   DEPOSITION OF MARC S. RYSMAN, PhD,  
18                   called as a witness by and on behalf of Google LLC,  
19                   pursuant to the applicable provisions of the  
20                   Federal Rules of Civil Procedure, before P. Jodi  
21                   Ohnemus, RPR, RMR, CRR, CA-CSR #13192, NH-LSR #91,  
22                   MA-CSR #123193, and Notary Public, within and for  
23                   the Commonwealth of Massachusetts, at 100 Cambridge  
24                   Street, Boston, Massachusetts, on Friday, March 10,  
25                   2023, commencing at 9:07 a.m.

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## I N D E X

**TESTIMONY OF:**

PAGE

**MARC S. RYSMAN, PhD**

(By Mr. Raphael)

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4	Exhibit 1057	Expert Report of Marc Rysman, October 3, 2022	9
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1 (Exhibit 1057, Expert Report of Marc  
2 Rysman, October 3, 2022.)

3 (Exhibit 1058, Expert Rebuttal Report of  
4 Dr. Marc Rysman, December 23, 2022.)

5 VIDEO OPERATOR: We are on the record.

6 This is the videographer speaking, Shawn Budd, with  
7 Veritext Legal Solutions. Today's date is March  
8 10th, 2023. The time is 9:07 a.m. We are here in  
9 Boston, Massachusetts, to take the video deposition  
10 of Dr. Marc Rysman in the matter of Google Play  
11 Store Antitrust Litigation.

12 Would counsel please introduce themselves  
13 for the record.

14 MS. WEINSTEIN: Lauren Weinstein on behalf  
15 of the states. With me are my colleagues, Brendan  
16 Glackin and Brendan Benedict.

17 MS. GIULIANELLI: Karma Giulianelli on  
18 behalf of consumers.

19 MR. HARSHBARGER: Tate Harshbarger on  
20 behalf of Match plaintiffs.

21 MR. RAPHAEL: Justin Raphael, Munger  
22 Tolles & Olson, for Google.

23 Is there anyone on the phone?

24 MS. WEINSTEIN: We did telephonic  
25 appearances on the record.

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1 Q. Have you read any portion of any report  
2 that Doctor Singer submitted in this case?

3 MS. WEINSTEIN: Objection to form.

4 A. I rely on one number that he produces in  
5 my rebuttal report.

6 Q. Okay. Move to strike as nonresponsive.

7 Have you read any portion of any report  
8 that Doctor Singer submitted in this case?

9 MS. WEINSTEIN: Objection to form.

10 And there's no basis for moving to strike.  
11 He's trying his best to answer your questions.

12 A. Sorry. Ask one more time.

13 Q. Have you read any portion of any report  
14 that Doctor Singer submitted in this case?

15 MS. WEINSTEIN: Objection to form.

16 A. I did not personally read the report, no.

17 Q. Have you read transcripts of depositions  
18 of any other plaintiff expert?

19 A. No.

20 Q. Have you communicated with any other  
21 expert that any plaintiff has retained to testify  
22 in this litigation?

23 MS. WEINSTEIN: Objection to form.

24 A. No.

25 Q. Have you communicated with any app

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1 developer or their counsel regarding any issue  
2 related to this litigation?

3 MS. WEINSTEIN: Objection to form.

4 A. No.

5 Q. Do you know Google's expert, Catherine  
6 Tucker?

7 MS. WEINSTEIN: Objection to form.

8 A. Personally?

9 Q. Well, either personally or professionally.

10 A. Yes.

11 Q. You've appeared with Doctor Tucker on  
12 panels?

13 A. Yes.

14 Q. You've cited Doctor Tucker's work?

15 A. Yes.

16 Q. Is Doctor Tucker an expert on the  
17 economics of platforms?

18 MS. WEINSTEIN: Objection to form and to  
19 scope.

20 A. Yes.

21 Q. Is Doctor Tucker one of the leading  
22 experts on the economics of platforms?

23 MS. WEINSTEIN: Same objections.

24 A. I'm happy to characterize her as one of  
25 the leading experts on economics of platforms.

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1                   Do you think Hal Singer has the academic  
2 body of work or qualifications to be a member of  
3 the faculty at Boston University?

4                   MS. WEINSTEIN: Objection to form and to  
5 scope.

6                   A. He might fit in in -- in parts of the  
7 faculty at Boston University.

8                   Q. In the economics department?

9                   A. He probably would not fit in in the  
10 economics department, but there's other parts of  
11 Boston University where he would be more natural.

12                  Q. Which parts?

13                  A. I would think the law school.

14                  Q. Okay. Do you know plaintiffs' expert  
15 Stephen Schwartz?

16                  A. I don't know Stephen Schwartz.

17                  Q. Ever heard of him?

18                  MS. WEINSTEIN: Objection to form.

19                  A. I don't know. I don't know Stephen  
20 Schwartz.

21                  Q. Are you offering any estimate of damages  
22 based on overcharges to consumers?

23                  MS. WEINSTEIN: Objection to form.

24                  A. Yes.

25                  Q. And that estimate of damages for

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1 overcharges to consumers depends on pass through of  
2 a service fee rate that's charged by Google; right?

3 MS. WEINSTEIN: Objection to form.

4 A. Yeah, it depends on how the -- the level  
5 of damages depends on how the rates that you --  
6 that Google charges affect the prices that app  
7 developers charge.

8 Q. Right. And so if Google -- strike that.

9 If developers would not pass through the  
10 service fees that they pay to Google to consumers,  
11 then there wouldn't be overcharge damages?

12 MS. WEINSTEIN: Objection to form.

13 A. Sorry. Say the question again.

14 Q. Sure.

15 If developers would not pass through any  
16 elevated service fee that they pay to Google, then  
17 consumers would not experience any overcharge  
18 damages; right?

19 MS. WEINSTEIN: Same objection.

20 A. Yeah, I agree with that.

21 Q. But your report takes no position on what  
22 the pass-through rate is; right?

23 A. That's correct.

24 Q. So -- and you don't opine on the level of  
25 reductions in Google's commissions that would be

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1       passed on?

2           A.    That's correct.

3           Q.    So you don't have an opinion whether it is  
4       more likely that the pass-through rate is zero  
5       percent or 100 percent?

6           A.    That's right.

7           Q.    Your -- your total damages figure just  
8       assumes 100 percent pass through; right?

9                MS. WEINSTEIN: Objection to form.

10          A.    No.

11          Q.    What pass-through rate does your damages  
12       analysis assume?

13          A.    My damages analysis is set up to be robust  
14       to any pass-through rate. So I consider several  
15       pass-through rates. I consider zero percent. I  
16       consider 100 percent. And ultimately the damages  
17       number that I adopt is the one with the zero  
18       percent because that's the most conservative.

19          Q.    Have you calculated any figure of damages  
20       with a pass-through rate other than zero percent or  
21       100 percent?

22                MS. WEINSTEIN: Objection to form.

23                You can testify as to what you relied on.

24          A.    Yes.

25          Q.    What -- what pass-through figure did you

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1 use other than zero percent or 100 percent to  
2 calculate damages?

3 A. Well, as we discussed, I used the -- I  
4 used the -- this we did not discuss. I take it  
5 back.

6 I used a pass-through rate that was  
7 proposed by Hal Singer, and I used a pass-through  
8 rate that was proposed by Doctor Leonard.

9 Q. Okay. Any other pass-through rates that  
10 you used to calculate damages?

11 A. I don't recall any further ones, no.

12 Q. Could you go to paragraph 321 of your  
13 reply report. This is Exhibit 1058.

14 MS. WEINSTEIN: 321, you said?

15 MR. RAPHAEL: Yes.

16 MS. WEINSTEIN: Thank you.

17 Page 171.

18 Q. Do you see the second sentence of  
19 paragraph 321 says (as read):

20 "If I had wanted to evaluate pass-through  
21 rates, I would have developed a model with  
22 mechanisms to address pass through."

23 Do you see that?

24 A. Yes.

25 Q. What do you mean by that?

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1 MS. WEINSTEIN: And, Doctor Rysman, if you  
2 need to review anything else in this document to  
3 answer the question, you may.

4 A. Doctor Leonard states that my model  
5 makes -- has implications about pass through, but I  
6 disagree with that. The point of the model is to  
7 be flexible with regards to pass through; and if --  
8 and in particular I mean if I had wanted the model  
9 to capture pass through, I would have changed the  
10 model in some way to be -- to address that.

11 Q. How would you have changed it?

12 A. Well, that would be speculation. I would  
13 need to study pass through.

14 Q. Okay. So you haven't studied the pass  
15 through in this case at all?

16 MS. WEINSTEIN: Objection to form.

17 And you can testify as to what you relied  
18 upon.

19 A. Yeah, I don't have -- I don't provide an  
20 opinion on pass through in the report.

21 Q. Okay. Would you have used a standard  
22 logit model to calculate pass through --

23 MS. WEINSTEIN: Objection to form.

24 Q. -- if you had been trying to do that?

25 MS. WEINSTEIN: Excuse me.

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1 model is based on a single representative consumer  
2 that buys every app; right?

3 A. So the way I think about it in this case  
4 is that consumers -- all consumers spend the same  
5 share on these different apps. There could be a  
6 lot of heterogeneity in how much income or how much  
7 budget the consumers apply to the different apps.

8 Q. Okay. But is it true that your model's  
9 based on a single representative consumer that buys  
10 every app?

11 MS. WEINSTEIN: Objection to form.

12 A. That's a reasonable description of the  
13 model. I would just say that I do think of them  
14 as -- I do think of their -- it allows for  
15 heterogeneity in how much consumers spend on each  
16 app, although they're all going to buy, as you say,  
17 some share of -- of every app.

18 And, again, the model is well known to be  
19 consistent with, let's say, a logit-type model,  
20 which wouldn't have the feature that you're  
21 describing.

22 Q. Okay. So your app variety model is trying  
23 to calculate how much happier consumers would be if  
24 they had more variety of apps; right?

25 MS. WEINSTEIN: Objection to form.

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1           A. Yes.

2           Q. Okay. And your app variety model is not  
3           trying to calculate the actual dollars that  
4           consumers would have in their pocket but for  
5           Google's anticompetitive conduct; right?

6           MS. WEINSTEIN: Objection to form.

7           A. I calculate the dollar value they would  
8           need to be indifferent between a world where Google  
9           had imposed this anticompetitive conduct and when  
10           they didn't impose this competitive --  
11           anticompetitive conduct.

12           Q. Right. What you're doing with your app  
13           variety model is you're trying to assign a value to  
14           the additional happiness that consumers would  
15           experience if they had additional app variety?

16           MS. WEINSTEIN: Objection to form.

17           A. Yes. And what I'm doing is a standard  
18           approach in economics for valuing new goods or the  
19           value of variety.

20           Q. But just to be clear, that model is not  
21           trying to calculate the actual dollars that  
22           consumers would have in their pocket if they had an  
23           additional app variety; right?

24           MS. WEINSTEIN: Objection to form.

25           A. That's correct.

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1           Q. Now, your app variety model is trying to  
2 measure how much happier consumers would be and  
3 assign a value to that for consumers in the  
4 aggregate; right?

5           A. The number I propose is an aggregate --  
6 the damages number I propose is an aggregate  
7 damages number.

8           Q. And you're not trying to use the app  
9 variety model to determine how any individual  
10 consumer was harmed?

11           MS. WEINSTEIN: Objection to form.

12           A. I don't do that calculation.

13           Q. Right. And, in fact, your app variety  
14 model, I think you mentioned, is designed to, sort  
15 of, average out what you called the heterogeneity  
16 of -- between different individual consumers;  
17 right?

18           MS. WEINSTEIN: Objection to form.

19           A. I think of it as summing over the  
20 heterogeneity to get this description of damages  
21 for the entire, let's say, like a state for a given  
22 year.

23           Q. Right. You can't use your app variety  
24 model to calculate how much happier any individual  
25 consumer would have been in the but-for world or

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1 accurate in this case. I make many decisions to be  
2 conservative. And so I think what I would be  
3 developing would be a conservative number on --  
4 of -- and from my perspective, conservative  
5 generates a lower damages number.

6 Q. Would using your app variety model in this  
7 case reliably tell you what the additional  
8 happiness that any individual consumer would  
9 experience from additional app variety?

10 MS. WEINSTEIN: Objection to form.

11 A. I think it would be reasonable -- I could  
12 see it being reasonable to use my model for -- at  
13 the level of an individual applying it to  
14 individual spending. I've made some conservative  
15 assumptions.

16 Q. Is spending the only variable between  
17 consumers that's relevant to the happiness they  
18 would get from additional app variety?

19 MS. WEINSTEIN: Objection to form.

20 A. Say the question again.

21 Q. Is the variation between what different  
22 consumers spend the only variation between them  
23 that is relevant to calculating how much additional  
24 happiness each of them would get from additional  
25 app variety?

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1 MS. WEINSTEIN: Objection to form.

2 A. If I wanted to address -- so my model  
3 handles heterogeneity and spending across apps. If  
4 I wanted to address more heterogeneity, I would --  
5 might have to adjust the model.

6 Q. Right. And do you think that there is  
7 more heterogeneity between consumers other than  
8 spending that's relevant to figuring out how much  
9 better off they would be if they got additional app  
10 variety?

11 MS. WEINSTEIN: Objection to form.

12 A. There certainly could be.

13 Q. You might have to know how much they value  
14 each particular app, for example?

15 MS. WEINSTEIN: Objection to form.

16 A. I use spending as a proxy for how much  
17 they value apps on the App Store -- the Play Store.  
18 Excuse me.

19 Q. All right. So your model models the value  
20 of variety consumers proportionately to how they  
21 spend in the actual world; right?

22 MS. WEINSTEIN: Objection to form.

23 A. Yeah. The outcome of my model is that  
24 people that spend more money on the Play Store will  
25 value additional variety more.

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1 It's a very reasonable one that I think most  
2 economists would think of for analyzing this  
3 market. And it's appealing in many ways.

4 Q. Okay. So -- but you haven't done any  
5 analysis in your report to determine whether it's  
6 true that consumers that spent more in the actual  
7 world would value app variety more in the but-for  
8 world?

9 MS. WEINSTEIN: Objection to form.

10 A. I haven't analyzed specifically that  
11 question. Although I do think it's reasonable that  
12 consumers that spend more on the -- on the Play  
13 Store will value new variety and lower prices more.

14 Q. So let me ask you this: A consumer that  
15 spent \$10,000 on Fortnite and made no other  
16 purchases in the actual world, does your model  
17 imply that that person would value variety more  
18 than a consumer that spent \$1 on 500 different  
19 apps?

20 MS. WEINSTEIN: Objection to form.

21 A. Does my model imply that the first  
22 consumer would value new variety more than the  
23 second consumer --

24 Q. Yes.

25 A. -- is that the question?

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1           Yes, it does. But I would just say it's  
2 not -- it's meant to be an approximation of the way  
3 the model captures how consumers value apps. And  
4 so it could be that in the counterfactual world the  
5 consumer that spends \$10,000 on Fortnite found one  
6 other app that they liked better than Fortnite and  
7 moved -- spent now nothing on Fortnite and \$12,000  
8 on some alternative app. So my model doesn't  
9 attempt to model all of that level of interaction,  
10 but I think that's a reasonable way to think about  
11 the world.

12           Q. Right. And just to be clear, though, in  
13 your reports you haven't done any analysis to  
14 determine whether any of the examples you just gave  
15 actually reflect what would happen in -- in the  
16 but-for world; right?

17           MS. WEINSTEIN: Objection. Form.

18           A. I don't have evidence showing that's  
19 exactly the dynamic that would take place.

20           Q. Doctor Rysman, what apps would have  
21 entered in a but-for world without Google's  
22 conduct?

23           MS. WEINSTEIN: Objection to form.

24           A. I don't identify specific apps that would  
25 have entered. So my approach to studying entry is

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1       that Doctor Tucker mentioned that actually did  
2       enter with an Android app in the actual world;  
3       right?

4           A.    They did eventually enter, yes, with some  
5       delay.

6           Q.    Okay. So what I'm asking is can you name  
7       one app that would have entered in the but-for  
8       world but never entered with an Android app in the  
9       actual world?

10           MS. WEINSTEIN: Objection to form.

11           A.    Yeah, that's obviously a difficult  
12       statement to make, what app that never entered  
13       would have entered in the -- in this but-for world,  
14       but I do not identify specific apps that would have  
15       done that.

16           Q.    Have you assumed that the additional  
17       variety from the apps you say would have entered  
18       would have been equally valuable to consumers in  
19       different states?

20           MS. WEINSTEIN: Objection to form.

21           A.    They would have been valuable in my model;  
22       and then my damages, the damages number that I  
23       proposed, they would have been proportionately  
24       valuable to the spending on -- of consumers in  
25       these different states.

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1 right?

2 MS. WEINSTEIN: Objection to form.

3 A. The model that I use is -- shows up in  
4 both micro and macroeconomics. I agree, it's sort  
5 of probably more widely used in macroeconomics.

6 Q. Okay. Have you -- have you seen this sort  
7 of model used in any antitrust case?

8 MS. WEINSTEIN: Objection to form and  
9 scope.

10 A. What do you mean by "this sort of model"?

11 Q. The kind of model of a large economy that  
12 you describe in your report.

13 MS. WEINSTEIN: Same objections to form  
14 and scope.

15 A. Yeah, I'm not aware of it being used in an  
16 antitrust case. Although I'm not an expert on  
17 every antitrust case that's out there.

18 Q. Sadly not.

19 MS. WEINSTEIN: Object to the  
20 editorialization by counsel.

21 Q. So you're modeling the Android app  
22 ecosystem as if it were its own large economy?

23 MS. WEINSTEIN: Objection to form.

24 A. That's a fine way to describe it.

25 Q. Your app variety model assumes that all

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1 apps are the same in a number of ways; right?

2 MS. WEINSTEIN: Objection to form.

3 A. My app variety model makes that  
4 assumption, but I provide several parts of analysis  
5 to check that that's a reasonable assumption.

6 Q. Okay. And you call that assumption the  
7 symmetry assumption; right?

8 A. I forget exactly where I use the word  
9 symmetry, but I'm -- symmetry's a reasonable word  
10 to use here.

11 Q. Okay. And this assumption that all apps  
12 are the same in a number of ways, you would agree  
13 that that's an abstraction; right?

14 MS. WEINSTEIN: Objection to form.

15 A. Yeah, I'll just point out that in my  
16 demand estimation I allow the apps to be very  
17 different. I -- app -- what's known as "app fixed  
18 effects." So that's allowing substantial  
19 heterogeneity across apps in terms of their  
20 quality.

21 Q. Okay. But your app variety model assumes  
22 that all apps had the same prices; right?

23 MS. WEINSTEIN: Objection to form.

24 A. In the damages model, the way I solve it,  
25 I assume that all -- well, I allow all apps to have

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1 the same prices, but I also provide some  
2 theoretical analysis to show that that's not a  
3 restrictive requirement.

4 Q. Okay. But I'm just asking, as a factual  
5 matter, your app variety model assumes that all  
6 apps have the same prices; right?

7 MS. WEINSTEIN: Objection to form.

8 A. I solve the model as if all apps have the  
9 same prices.

10 Q. But in the real world, you would agree,  
11 that all apps don't have the same prices; right?

12 MS. WEINSTEIN: Objection to form.

13 A. I agree.

14 Q. And your app variety model assumes that  
15 all apps have the same marginal costs; right?

16 MS. WEINSTEIN: Objection to form.

17 A. I let all the apps have the same marginal  
18 cost; but, again, I provide theoretical analysis to  
19 show that that's not a restrictive assumption.

20 Q. I understand. But in the real world all  
21 apps don't have the same marginal costs, do they?

22 MS. WEINSTEIN: Objection to form.

23 A. I would be surprised if they all had the  
24 same marginal cost in the real world.

25 Q. And your app variety model assumes that

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1 all apps have the same entry cost, doesn't it?

2 MS. WEINSTEIN: Objection to form.

3 A. Yes, I assume that all apps have the same  
4 entry cost in the way I solve the damages model.

5 Q. But in the real world, all apps don't have  
6 the same entry cost, do they?

7 MS. WEINSTEIN: Objection to form.

8 A. I agree with what you say. I would just  
9 say again that in this literature that I'm drawing  
10 on, these would be really standard assumptions to  
11 make to be able to provide answers in questions  
12 like this one where there's, you know, hundreds of  
13 thousands of apps interacting.

14 Q. Right. But that literature that you're --  
15 well, I'll go back to that, but your app variety  
16 model assumes that all apps have the same quantity  
17 of sales; right?

18 MS. WEINSTEIN: Objection to form.

19 A. When I solve the damages model, all apps  
20 have the same quantity, that's true. But, again, I  
21 provide analysis to show that that's an  
22 approximate -- a reasonable approximation and that  
23 it's not driving the results.

24 Q. But in the real world all apps don't have  
25 the same quantity of sales; right?

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1 MS. WEINSTEIN: Objection to form.

2 A. That's correct, and I address that in my  
3 demand estimation.

4 Q. Right. And your app variety model assumes  
5 that all apps have the same quality, doesn't it?

6 MS. WEINSTEIN: Objection to form.

7 A. When I solve the damages model, I assume  
8 that all apps have the same quality; but, again, I  
9 control for quality when I do the estimation. So  
10 I'm allowing for the apps to have different  
11 qualities when I estimate the demand curve; and,  
12 again, I have theoretical analysis showing that  
13 this approximation that I'm doing is a reasonable  
14 one and isn't driving the results.

15 Q. Okay. But in the real world you would  
16 agree that all apps don't have the same expected  
17 quality; right?

18 MS. WEINSTEIN: Objection to form.

19 A. I agree with that, yes.

20 Q. Okay. Now, you talk about the theoretical  
21 literature would say that the assumptions you've  
22 made about apps being the same would support those  
23 assumptions as reasonable; right?

24 A. I think the method that I use is  
25 acceptable in the economics literature for studying

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1 a market like this one.

2 Q. And the economics literature that you're  
3 describing, are the authors of the papers in those  
4 literature trying to determine damages for  
5 consumers based on conduct that happened in the  
6 actual world?

7 MS. WEINSTEIN: Objection to form.

8 A. I'd have to think, but certainly it would  
9 be natural in these papers to use the models to  
10 construct welfare or equivalent variation, which is  
11 the calculation I use to construct damages.

12 Q. Okay. Have you -- are you familiar with  
13 any economist that's used the app variety model  
14 that you've used in this case to calculate damages?

15 MS. WEINSTEIN: Objection to form.

16 A. Well, I understand damages to be a term  
17 that's associated with antitrust litigation, and so  
18 you wouldn't naturally talk about damages in an  
19 academic paper. We would talk about consumer  
20 welfare. Like I said, compensating variation or  
21 equivalent variation, and models like this could be  
22 used to make calculations like that.

23 Q. So the answer to my question, though, is  
24 no. You've never seen any economists use the app  
25 variety model that you used in this case to

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1 calculate damages?

2 MS. WEINSTEIN: Objection to form.

3 He answered your question.

4 A. I guess the answer is yes, but I would not  
5 have -- I'd be very surprised to ever see that  
6 because we don't use -- calculating damages is not  
7 a natural part of an academic economics paper.

8 Q. Your app variety model assumes that each  
9 app generates revenue through the sale of a single  
10 product at a single price; is that right?

11 MS. WEINSTEIN: Objection to form.

12 A. That's correct.

13 Q. But that's not true of all apps in the  
14 real world; right?

15 MS. WEINSTEIN: Objection to form.

16 A. That's correct.

17 Q. In fact, many free apps have multiple SKUs  
18 for subscriptions for different kinds of IAPs?

19 MS. WEINSTEIN: Objection to form.

20 A. Without taking a position on my knowledge  
21 of exactly the words you just used, I understand  
22 that in the real world, apps may or a developer may  
23 monetize an app through several different prices or  
24 products at some level. I think it's fairly  
25 standard in this literature to extract away from

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1 multiproduct pricing in order to kind of generate  
2 results that are useful.

3 Q. It's standard in the economic literature  
4 you're relying on to abstract away from the  
5 circumstances of the real world?

6 A. Well, every model is an abstraction away  
7 from the circumstances of the real world. There's  
8 no model that captures every single element of the  
9 real world. So it's standard in this literature  
10 and in all of the economics literature.

11 Q. And your app variety model assumes that  
12 each app competes with the other 465,000 or so apps  
13 that charge for downloads, subscriptions, or IAPs;  
14 right?

15 MS. WEINSTEIN: Objection to form.

16 A. Yes.

17 Q. But in the real world, all 465,000 of  
18 those apps don't compete with each other, do they?

19 MS. WEINSTEIN: Objection to form.

20 A. Well, let's say -- just to pick on your  
21 number -- there's only so many apps available in a  
22 given year. I only allow competition between those  
23 apps in the same year. So the number is  
24 substantially less than 400,000.

25 Q. Okay. But it's not your testimony that

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1           Q.    But you have no opinion about whether all  
2    apps in the Google Play Store or all apps in a  
3    particular category in that store compete with each  
4    other?

5           MS. WEINSTEIN: Objection to form.

6           He answered your question.

7           A.    I don't have a -- I'm not providing an  
8    opinion on specifically that issue.

9           Q.    How many apps does your model estimate  
10   would have entered if Google had charged lower  
11   service fees in the but-for world?

12          A.    How many apps would have entered in the  
13   but-for world?

14          Q.    Yes.

15          A.    I provide that in a -- I have a figure  
16   showing that, I think, in the rebuttal report.

17          Q.    And do you remember what that figure is?

18          MS. WEINSTEIN: Objection to form.

19          A.    I can picture it. I don't know the number  
20   off the top --

21          Q.    Does 338,000 sound right?

22          MS. WEINSTEIN: Objection to form.

23           If you want to look at your report, you  
24   can.

25          A.    That sounds about right for the model

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1 where I've -- where I allow for zero pass through.

2 Q. Have you conducted any analysis of whether  
3 more apps have been entering since Google reduced  
4 service fees?

5 MS. WEINSTEIN: Objection to form.

6 You can answer about what you relied upon.

7 A. Yes.

8 Q. Have you done any statistical analysis  
9 showing a correlation between reduced service fees  
10 and increased app entry?

11 MS. WEINSTEIN: Same objection and  
12 caution.

13 A. I provide a figure in my rebuttal report  
14 that shows an increase in the apps entering  
15 directly after the reduction in service fees.

16 Q. Have you conducted a regression or any  
17 other statistical analysis to try to isolate any  
18 causal factor between the reduction in Google's  
19 service fee and the number of apps in the Play  
20 Store?

21 MS. WEINSTEIN: Same objection and  
22 caution.

23 A. I don't have an econometric analysis like  
24 that in the -- in the reports.

25 Q. Are you offering any opinion that any

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1 variety.

2 Q. Have you analyzed any Google data  
3 regarding the reduction in service fee and the  
4 number of apps to draw a conclusion that Google's  
5 reduction in service fees caused the rate of app  
6 entry to increase?

7 MS. WEINSTEIN: Objection to form.

8 You can testify about what you relied  
9 upon.

10 A. I'm not sure what you mean. I used the  
11 model to show that a reduction in service fee will  
12 lead to more entry of apps and greater variety for  
13 consumers. And then I have the -- a figure showing  
14 that directly after Google's reduction in service  
15 fees there was an increase in the number of apps on  
16 the market. So...

17 Q. But you've done no analysis --

18 MS. WEINSTEIN: Excuse me.

19 Doctor Rysman, did you finish answering  
20 his question?

21 THE WITNESS: I did.

22 MS. WEINSTEIN: Okay.

23 Q. You've done no analysis to determine  
24 whether the increase in the number of apps  
25 following Google's reduction in service fees

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1 reflects a causal relationship between those two  
2 figures; right?

3 MS. WEINSTEIN: Objection to form.

4 He's answered this question twice.

5 A. I don't have a regression analysis  
6 analyzing this -- the relationship between the  
7 increase in apps following the reduction in service  
8 fees and the reduction in service fees.

9 Q. And -- and you've done no analysis to  
10 determine whether the prediction of your model  
11 about app entry in the but-for world accurately  
12 predicts what happened when Google reduced service  
13 fees in the actual world?

14 MS. WEINSTEIN: Objection to form.

15 A. Well, there will be many issues with, sort  
16 of, using the model in this way that you describe,  
17 I think. But I would just say that the model is  
18 carefully calibrated to match Google data and draws  
19 parameters from calculations I did with Google data  
20 or from other parts of the literature that made the  
21 results more conservative.

22 Q. Fair enough.

23 But for whatever reason, you've done no  
24 analysis to determine whether your model of the  
25 but-for world accurately predicts what you see in

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1 data on the actual world regarding app entry after  
2 Google reduced service fees?

3 MS. WEINSTEIN: Objection to form.

4 A. I don't have a specific comparison of the  
5 model to this particular reduction in fees that  
6 you're describing. This -- in the data I think  
7 there would be substantial problems with doing that  
8 comparison. And -- but I would just say, again,  
9 the model shows an increase in output and variety  
10 or, if I allow for pass through, a reduction in  
11 prices; and that comes from a model that's matched  
12 to the data as -- as -- in a way that I think is  
13 appropriate.

14 Q. Other than your app variety model of the  
15 but-for world, do you have any basis for any  
16 conclusion that Google's reduction in service fees  
17 in the actual world caused app entry to increase?

18 MS. WEINSTEIN: Objection to form.

19 A. Well, I have a figure showing that app  
20 entry went up directly after the reduction in fees.

21 Q. Any other basis for drawing a causal  
22 opinion about Google's reduction in service fees  
23 and increased app entry?

24 A. Generally as an economist I think it makes  
25 sense. So I think it's a very sensible eco- -- as